## CLAIMS

What is claimed:

1. A transistor gate dielectric comprising:

a first dielectric material having a first dielectric constant; and

a second dielectric material having a second dielectric constant different from the first dielectric constant.

2. The transistor gate dielectric of claim 1, wherein the second dielectric constant is greater than the first dielectric constant.

3. The transistor gate dielectric of claim 1, wherein the first material has a first thickness and the second material has a second thickness, the combination of the first thickness and the second thickness defining a total thickness less than one-third of the length of a transistor gate adapted to overly the gate dielectric.

4. The gate dielectric of claim 3, wherein the first material thickness and the second material thickness are determined by the relationship

$$t_1/k_1 + t_2/k_2 = t_{ox}/k_{ox}$$

wherein $t_1$ is the first material thickness,

$t_2$ is the second material thickness,

$t_{ox}$ is the minimum thickness for a gate dielectric of silicon dioxide for a chosen gate length,

$k_1$ is the dielectric constant for the first dielectric material,

$k_2$ is the dielectric constant for the second dielectric material, and

$k_{ox}$ is the dielectric constant of silicon dioxide.

5. The gate dielectric of claim 1, wherein the first gate dielectric material is selected from one of silicon nitride, $HfO_2$, BaO, $La_2O_3$, $Y_2O_3$, and $ZrO_2$.

6. The gate dielectric of claim 1, wherein the second dielectric material is selected from one of BST and PZT.

7. The gate dielectric of claim 1, further comprising a third dielectric material having a third dielectric constant.

8. A transistor having a gate electrode overlying a gate dielectric comprising:

a first dielectric material having a first dielectric constant; and

a second dielectric material having a second dielectric constant different from the first dielectric constant.

9. The transistor of claim 8, wherein the second dielectric of the gate dielectric has a dielectric constant greater than the first dielectric constant.

10. The transistor of claim 8, wherein the first material of the gate dielectric has a first thickness and the second material of the gate dielectric has a second thickness, the combination of the first thickness and the second thickness defining a total thickness less than one-third of a length of the transistor gate electrode.

11. The transistor of claim 8, wherein the first material thickness and the second material thickness are determined by the relationship

$$t_1/k_1 + t_2/k_2 = t_{ox}/k_{ox}$$

wherein $t_1$ is the first material thickness,

$t_2$ is the second material thickness,

$t_{ox}$ is the minimum thickness for a gate dielectric of silicon dioxide for a chosen gate electrode length,

$k_1$ is the dielectric constant for the first dielectric material,

$k_2$ is the dielectric constant for the second dielectric material, and

$k_{ox}$ is the dielectric constant of silicon dioxide.

12. The transistor of claim 8, wherein the first gate dielectric material is selected from one of silicon nitride, $HfO_2$, BaO, $La_2O_3$, $Y_2O_3$, and $ZrO_2$.

13. The gate dielectric of claim 8, wherein the second dielectric material is selected from one of BST and PZT.

14. The gate dielectric of claim 8, further comprising a third dielectric material having a third dielectric constant.